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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,339	12/19/2001	Peter N. Slater		3514

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EXAMINER

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ART UNIT PAPER NUMBER

3749

DATE MAILED: 12/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,339	SLATER ET AL.	
	Examiner	Art Unit	
	Kenneth B Rinehart	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 19 December 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 46-48 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-36 is/are rejected.
- 7) Claim(s) 37-45 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 December 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-45, drawn to a method/process , classified in class 431, subclass 2.
- II. Claims 46-48, drawn to an apparatus suitable for analyzing combusted gas, classified in class 340, subclass 577.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination can use an instrument that does not require a gas sample to determine the combustion characteristic. The subcombination has separate utility such as for evacuating a chamber to freeze dry substances.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Anderson on 12/6/02 a provisional election was made with traverse to prosecute the invention of Group 1, claims 1-45. Affirmation of this election must be made by applicant in replying to this Office action. Claims 46-48 are

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withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 15, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Yuino. Yuino shows individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); and individually adjusting the flow of air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52) .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino in view of Sakai. Yuino discloses individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); and individually adjusting the flow of air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of said combustion characteristic comprises

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a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof, said combustion characteristic is oxygen. Saiko teaches said combustion characteristic comprises a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof, said combustion characteristic is oxygen (Constitution) for the purpose of reducing NOX. It would have been obvious to one of ordinary skill in the art to modify Yuino by including said combustion characteristic comprises a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof, said combustion characteristic is oxygen as taught by Saiko for the purpose of reducing NOX to meet environmental requirements.

Claims 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino in view of Neum. Yuino discloses individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); and individually adjusting the flow of air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide. Neum teaches said combustion characteristic is carbon dioxide, said combustion characteristic is

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carbon monoxide (Abstract) for the purpose of maintaining optimal combustion. It would have been obvious to one of ordinary skill in the art to modify Yuino by including said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide as taught by Neum for the purpose of maintaining optimal combustion to reduce operating costs.

Claim 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino in view of Lewis. Yuino discloses individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); and individually adjusting the flow of air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52), individually supplying ... air to each of said burner assemblies in each of said control zones for mixture and at least partial combustion with said fuel supplied thereto thereby producing a separate ... combustion product for each of said burner assemblies (fig. 1, fig. 2, col. 4, lines 16-26) , individually supplying ... air to each of said burner assemblies in each of said control zones ... for each of said burner assemblies (fig. 2), individually adjusting the flow of aid ... air and individually adjusting the flow of said ... air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52), the flow of said ...air to each of said burner assemblies is adjusted in response to the value of said combustion characteristic

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corresponding to each of said control zones first ... as needed in order to keep the value of each of said combustion characteristics within said predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of primary, intermediate, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, followed by adjustment of the flow of said secondary air, each of said combustion characteristics comprises a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof said combustion characteristic is oxygen concentration . Lewis teaches primary (7, figure 2), intermediate (4, fig. 2), secondary (9, fig. 2), for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream (6, figure 2), followed by adjustment of the flow of said secondary air (col. 3, lines 61-65), each of said combustion characteristics comprises a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof said combustion characteristic is oxygen concentration (col. 4, lines 5-6) for the purpose of eliminating the need for additional instrumentation. It would have been obvious to one of ordinary skill in the art to modify Yuino by including primary, intermediate, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, followed by adjustment of the flow of said secondary air, each of said combustion characteristics comprises a component selected from the group consisting of oxygen concentration, carbon monoxide concentration, carbon dioxide concentration, and combinations thereof said combustion

characteristic is oxygen concentration as taught by Lewis for the purpose of eliminating the need for additional instrumentation and thus reducing costs.

Claim 22, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuino in view of Lewis and Neum. Yuino discloses individually supplying fuel to each of said burner assemblies in each of said control zones (col. 1, lines 25-41); individually measuring a combustion characteristic of the collective combusted gases from said burner assemblies in each of said control zones (col. 2, lines 9-20); individually supplying ... air to each of said burner assemblies in each of said control zones for mixture and at least partial combustion with said fuel supplied thereto thereby producing a separate ... combustion product for each of said burner assemblies (fig. 1, fig. 2, col. 4, lines 16-26) , individually supplying ... air to each of said burner assemblies in each of said control zones ... for each of said burner assemblies (fig. 2), individually adjusting the flow of aid ... air and individually adjusting the flow of said ... air to each of said burner assemblies in each of said control zones in response to the value of said combustion characteristic corresponding to each of said control zones to keep the value of each of said combustion characteristics within a predetermined range (col. 4, lines 17-26, col. 4, lines 36-52). Yuino discloses applicant's invention substantially as claimed with the exception of primary, intermediate, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, said combustion characteristic is carbon dioxide concentration, said combustion characteristic is carbon monoxide concentration. Lewis teaches primary (7, figure 2), intermediate (4, fig. 2), secondary (9, fig. 2), for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream (6, figure 2) for the purpose of eliminating the need for additional

instrumentation. It would have been obvious to one of ordinary skill in the art to modify Yuino by including primary, intermediate, secondary, for mixture with said intermediate combustion product for further combustion thereby producing a combusted gas stream, as taught by Lewis for the purpose of eliminating the need for additional instrumentation and thus reducing costs. Yuino in view of Lewis discloses applicant's invention substantially as claimed with the exception of said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide concentration. Neum teaches said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide concentration (Abstract) for the purpose of maintaining optimal combustion. It would have been obvious to one of ordinary skill in the art to modify Yuino by including said combustion characteristic is carbon dioxide, said combustion characteristic is carbon monoxide concentration as taught by Neum for the purpose of maintaining optimal combustion to reduce operating costs.

Claim 30-33, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of Lewis. Sakai discloses at least one control zone comprising at least one burner assembly (1, fig.), at least one gas analyzer related to each of said control zones for receiving and analyzing samples of combusted gas from said control zones (8, 9, fig.), each of said burner assemblies comprising a fuel introduction means for introducing fuel into said burner (fig.), control means operably related to said ... air introduction means and ... air introduction means (11, 13, fig.), and at least one gas analyzer (8, 9, fig.), for adjusting the flow of ... air and the flow of ... air to each of said burner assemblies in each of said control zones through said ... air introduction means and said ... air introduction means (5, fig.) , respectively in response to the value of a combustion characteristic measured in the collective combusted gas streams

corresponding to each of the control zones (18 a, 18b ,18 c, fig.), said combustion characteristic is oxygen concentration (Constitution), said combustion characteristic is carbon monoxide concentration (Constitution), introducing fuel into each of said burner assemblies in each of said control zones via said fuel introduction means (fig.), introducing ... air into said burner assemblies in each of said control zones via said ... air introduction means (14, fig.) for mixture and at least partial combustion with said fuel thereby producing an combustion product (fig.), introducing ... air into said burner assemblies in each of said control zones via said ... air introduction means (14, fig.), individually measuring the value of a combustion characteristic in the collective combusted gas streams corresponding to each of said control zones (18a, 18b, 18c, fig.), adjusting the flow of said ... air flow and said ... air to each of said burner assemblies in each of said control zones through said ... air introduction means and said ... air introduction means, respectively, in response to the value of said combustion characteristics measured in step e corresponding to each of said control zones (Constitution, fig.), in each of said control zones (fig.), each of said control zones (fig.). Saki discloses applicant's invention substantially as claimed with the exception of primary, secondary, intermediate, a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel, thereby producing an intermediate combustion product, and a secondary air introduction means for introducing secondary air into said burner assembly for mixture and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies, said primary air introduction means comprises an adjustable primary air register, and said secondary air introduction means comprises an adjustable secondary air register, for mixture and further combustion with said intermediate

combustion products thereby producing a combusted gas stream for each of said burner assemblies, the flow of said primary air to each of said burner assemblies ... is adjusted via said control means in response to the value of said combustion characteristic corresponding to... first followed by adjustment of the flow of said secondary air, as needed, via said control means in order to keep the value of each of said combustion characteristics within a predetermined range.

Lewis teaches primary (1, fig. 2), secondary (5, fig. 2), intermediate (4, fig.2), a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel (7, fig. 1), thereby producing an intermediate combustion product (4, fig. 1), and a secondary air introduction means for introducing secondary air into said burner assembly for mixture (9, fig. 2) and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies (6, fig. 2), said primary air introduction means comprises an adjustable primary air register (17, fig. 2) and said secondary air introduction means comprises an adjustable secondary air register (10, fig. 2), for mixture and further combustion with said intermediate combustion products thereby producing a combusted gas stream for each of said burner assemblies (9, 5, fig. 2), the flow of said primary air to each of said burner assemblies ... is adjusted via said control means in response to the value of said combustion characteristic corresponding to... first followed by adjustment of the flow of said secondary air , as needed, via said control means in order to keep the value of each of said combustion characteristics within a predetermined range (col. 3, lines 60-65) for the purpose of eliminating the need for additional instrumentation. It would have been obvious to one of ordinary skill in the art to modify Sakai by including primary, secondary, for mixture with said intermediate combustion product for further combustion thereby

producing a combusted gas stream, a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel, thereby producing an intermediate combustion product, and a secondary air introduction means for introducing secondary air into said burner assembly for mixture and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies, said primary air introduction means comprises an adjustable primary air register, and said secondary air introduction means comprises an adjustable secondary air register, for mixture and further combustion with said intermediate combustion products thereby producing a combusted gas stream for each of said burner assemblies, the flow of said primary air to each of said burner assemblies ... is adjusted via said control means in response to the value of said combustion characteristic corresponding to... first followed by adjustment of the flow of said secondary air , as needed, via said control means in order to keep the value of each of said combustion characteristics within a predetermined range as taught by Lewis for the purpose of eliminating the need for additional instrumentation and thus reducing costs.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in view of Lewis and Neum. Sakai discloses at least one control zone comprising at least one burner assembly (1, fig.), at least one gas analyzer related to each of said control zones for receiving and analyzing samples of combusted gas from said control zones (8, 9, fig.), each of said burner assemblies comprising a fuel introduction means for introducing fuel into said burner (fig.), control means operably related to said ...air introduction means and ... air introduction means (11, 13, fig.), and at least one gas analyzer (8, 9, fig.), for adjusting the flow of ... air and the flow of ... air to each of said burner assemblies in each of said control zones through said ... air

introduction means and said ... air introduction means (5, fig.) , respectively in response to the value of a combustion characteristic measured in the collective combusted gas streams corresponding to each of the control zones (18 a, 18b ,18 c, fig.). Saki discloses applicant's invention substantially as claimed with the exception of primary, secondary, a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel, thereby producing an intermediate combustion product, and a secondary air introduction means for introducing secondary air into said burner assembly for mixture and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies. Lewis teaches primary (1, fig. 2), secondary (5, fig. 2), a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel (7, fig. 1), thereby producing an intermediate combustion product (4, fig. 1), and a secondary air introduction means for introducing secondary air into said burner assembly for mixture (9, fig. 2) and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies (6, fig. 2) for the purpose of eliminating the need for additional instrumentation. It would have been obvious to one of ordinary skill in the art to modify Sakai by including primary, secondary, intermediate, a primary air introduction means for introducing primary air into said burner assembly for mixture and at least partial combustion with said fuel, thereby producing an intermediate combustion product, and a secondary air introduction means for introducing secondary air into said burner assembly for mixture and further combustion with said intermediate combustion product, thereby producing a combusted gas stream for each of said burner assemblies as taught by Lewis for the purpose of eliminating

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the need for additional instrumentation. Sakai in view of Lewis discloses applicant's invention substantially as claimed with the exception of said combustion characteristic is carbon dioxide. Neum teaches said combustion characteristic is carbon dioxide (Abstract) for the purpose of maintaining optimal combustion. It would have been obvious to one of ordinary skill in the art to modify Saiki by including said combustion characteristic is carbon dioxide as taught by Neum for the purpose of maintaining optimal combustion to reduce operating costs.

Allowable Subject Matter

Claims 37-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4-6, 8-10, 12-14, 19-21, 23-25, and 27-29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of art with respect to burners in general: Gabrielson (3388862), Deitrick et al (4920998), Khinkis (5013236), Hein (3622257), Snyder (5683238), Epworth (5931652), Chappell et al (5520123), Alberti et al (5823764), Wright et al (4870910).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 703-308-1722. The examiner can normally be reached on 7:30-4:30 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 703-308-1935. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-308-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

kbr

December 10, 2002

Kenneth Rinehart
Kenneth Rinehart

Patent Examiner

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